



The Vitamin & Herb Stores

Human Technology Research Synopsis

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The popular insect repellent deet is neurotoxin

The active ingredient in many insect repellents, deet, has been found to be toxic to the central nervous system. Researchers writing in the open access journal BMC Biology say that more investigations are urgently needed to confirm or dismiss any potential neurotoxicity to humans, especially when deet-based repellents are used in combination with other neurotoxic insecticides.

Vincent Corbel from the Institut de Recherche pour le Développement in Montpellier, and Bruno Lapied from the University of Angers, France, led a team of researchers who investigated the mode of action and toxicity of deet (N,N-Diethyl-3-methylbenzamide). Corbel said, "We've found that deet is not simply a behavior-modifying chemical but also inhibits the activity of a key central nervous system enzyme, acetylcholinesterase, in both insects and mammals".

Discovered in 1953, deet is still the most common ingredient in insect repellent preparations. It is effective against a broad spectrum of medically important pests, including mosquitoes. Despite its widespread use, controversies remain concerning both the identification of its target sites at the molecular level and its mechanism of action in insects. In a series of experiments, Corbel and his colleagues found that deet inhibits the acetylcholinesterase enzyme – the same mode of action used by organophosphate and carbamate insecticides. These insecticides are often used in combination with deet, and the researchers also found that deet interacts with carbamate insecticides to increase their toxicity. Corbel concludes, "These findings question the safety of deet, particularly in combination with other chemicals, and they highlight the importance of a multidisciplinary approach to the development of safer insect repellents for use in public health".

Public release date: 11-Aug-2009

A synthetic derivative of the kudzu vine can reduce drinking and prevent relapse

- Kudzu extracts have been used in Chinese folk medicine to treat alcoholism for about 1,000 years.
- Daidzin is an anti-drinking substance in kudzu.
- A synthetic form of daidzin, called CVT-10216, can successfully reduce drinking and prevent relapse in preclinical rodent models.

Kudzu and its extracts and flowers have been used in traditional Chinese folk medicine to treat alcoholism for about 1,000 years. Kudzu contains daidzin, an anti-drinking substance. Daidzin inhibits human aldehyde dehydrogenase 2 (ALDH-2), which metabolizes alcohol into acetaldehyde. Inhibiting ALDH-2 promotes the accumulation of acetaldehyde, which has aversive effects. A recent test of a synthetic ALDH-2 inhibitor (CVT-10216) on rodents shows that it reduces drinking and prevents relapse by increasing acetaldehyde while drinking and later decreasing dopamine in the brain region that controls relapse during abstinence.

Results will be published in the November issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"I think the over-arching issue here is medical treatment," said Ivan Diamond, vice president of neuroscience at Gilead Science, Professor Emeritus of neurology, cellular and molecular pharmacology and neuroscience at the University of California, San Francisco, and corresponding author for the study.

"Alcoholism is a medical disorder, not just a problem of will power," he said. "Physicians treat medical disorders in order to prevent harm, while not necessarily curing the disease being treated – for example, drug treatment of hypertension, statins for high cholesterol, insulin for diabetes – and the same will become true for treating alcoholism. Heavy drinking causes harm. We need to prevent heavy drinking in order to prevent harm."

Diamond added that relapse may be the biggest problem facing physicians today. "We are talking about a patient who has the motivation to undergo a very unpleasant detoxification to try to stop drinking, and then gets into trouble afterward," he said. "Nearly 80 percent of abstinent alcoholics or addicts relapse within a year. Current therapies for alcoholism help, but we can do much better."

"Extracts of various parts of the kudzu vine have been used in many Chinese herbal medicine formulas and are said to be helpful in treating a variety of maladies, including alcoholism and intoxication," said Ting-Kai Li, a professor in the department of psychiatry at Duke University Medical Center, and former director of the National Institute on Alcohol Abuse and Alcoholism. "Recent research has found that several compounds of the isoflavone family – puerarin, daidzin, daidzein – in the kudzu extract decrease alcohol intake in experimental animals."

"Drs. Wing Ming Keung and Bert Vallee at Harvard were the first to confirm kudzu's effects and isolate

daidzin as the most potent of the isoflavones in kudzu," added Diamond. "They went further by searching for the basis of daidzin's anti-drinking properties, discovering that daidzin was a selective inhibitor of ALDH-2. Based on x-ray crystallographic studies of daidzin binding to ALDH-2, our team set out to design a compound that would interact more efficiently with ALDH-2, finally choosing CVT-10216 as our best candidate to date."

Diamond and his colleagues administered CVT-10216 to groups of rats bred for moderate and high levels of drinking, after having exposed them to various scenarios of alcohol administration: two-bottle choice, deprivation-induced drinking, operant self-administration, and cue-induced reinstatement. The researchers then tested for blood acetaldehyde levels, alcohol-induced dopamine release in the nucleus accumbens, and effects of the inhibitor on drinking behavior and relapse.

"We had several key findings," said Diamond. "We found that, one, CVT-10216 is a highly selective reversible inhibitor of ALDH2 without apparent toxicity. This means that it does not cause serious damage to other proteins and functions. Two, treatment with our ALDH-2 inhibitor increases acetaldehyde in the test tube and in living animals." Acetaldehyde's aversive effects can include a flushing reaction and feeling ill, which tend to reduce drinking. "And three, we found that our ALDH-2 inhibitor suppresses drinking in a variety of rodent drinking models."

But that's not the whole story, Diamond added. "Most importantly, we also found that CVT-10216 prevents the usual increase in drinking (binge drinking) that occurs after five days of abstinence, and also prevents relapse to drink, even when alcohol is not present. This means that something else besides acetaldehyde helps to suppress craving for, and prevent relapse to, drinking alcohol. We believe that 'something else' is dopamine." He said that current concepts suggest that increased dopamine in the nucleus accumbens drives craving and relapse into drinking.

"Alcohol-induced increases in dopamine in the nucleus accumbens are prevented by CVT-10216 in a dose-dependent manner," said Diamond. "This means the drug has a therapeutic effect in the brain, probably on the desire to drink. Importantly, CVT-10216 does not reduce basal dopamine levels when there is no stimulation to increase dopamine levels. This is consistent with our findings that CVT-10216 does not appear to affect moderate drinking, and does not have adverse side effects at the therapeutic doses used."

"The findings show promise that CVT-10216 might be better tolerated than Antabuse™," said Li. "How this happens is yet unknown, but suggests that the compound may be useful in treating alcohol relapse and perhaps for other psychoactive, potentially addictive compounds."

Diamond agreed: "Disulfiram or Antabuse™ has been around for 50 years," he explained. "It is called an ALDH-2 inhibitor, but it actually inhibits far more than that. Most believe that disulfiram would not be approved today as a new drug for alcoholism because of its many toxicities. Instead, we have developed CVT-10216, a reversible inhibitor with a very favorable profile, so far." Diamond hopes this novel compound will become an effective therapeutic agent for alcoholism.

"The goal of medicine is harm reduction," emphasized Diamond. "Excessive drinking causes harm while moderate drinking appears to be safe. Increasing numbers of doctors believe abstinence is an unrealistic goal. It sounds like heresy, but it isn't. Therefore, an ideal drug might be able to prevent uncontrolled relapse, convert heavy drinkers into moderate drinkers, and avoid the harmful consequences of excessive alcohol intake. If our compound works and is safe to use, then I think most physicians would not hesitate to prescribe a new drug to prevent relapse and reduce heavy drinking. My goal is to make this happen."

Public release date: 11-Aug-2009

High-fat diet affects physical and memory abilities of rats after 9 days

Rats fed a high-fat diet show a stark reduction in their physical endurance and a decline in their cognitive ability after just nine days, a study by Oxford University researchers has shown.

The research, funded by the British Heart Foundation and published in the FASEB Journal, may have implications not only for those eating lots of high-fat foods, but also athletes looking for the optimal diet for training and patients with metabolic disorders.

'We found that rats, when switched to a high-fat diet from their standard low-fat feed, showed a surprisingly quick reduction in their physical performance,' says Dr Andrew Murray, who led the work at Oxford University and has now moved to the University of Cambridge. **'After just nine days, they were only able to run 50 per cent as far on a treadmill as those that remained on the low-fat feed.'**

High-fat diets, such as those that are prevalent in Western countries, are known to be harmful in the long term and can lead to problems such as obesity, diabetes and heart failure. They are also known to be associated with a decline in cognitive ability over long time spans. But little attention has been paid to the effect of high-fat diets in the short term.

Physical endurance – how long we can keep exercising – depends on how much oxygen can be supplied to our muscles and how efficiently our muscles release energy by burning up the fuel we get from the food we eat. In particular, using fat as a fuel is less efficient than using glucose from carbohydrates, but the metabolic changes induced by different diets are complex and it has been controversial whether high-fat feeding for a short time would increase or decrease physical performance.

The Oxford team set out to investigate whether rats fed a high-fat diet for just a few days showed any change in their physical and cognitive abilities.

All 42 rats were initially fed a standard feed with a low fat content of 7.5 per cent. Their physical endurance was measured by how long they could run on a treadmill and their short-term or 'working' memory was measured in a maze task. Half of the rats were then switched to a high-fat diet where 55 per cent of the calories came from fat. After four days of getting used to the new diet, the endurance and cognitive performance of the rats on the low- and high-fat diets was compared for another five days.

'With the standard feed, 7.5 per cent of the calories come from fat. That's a pretty low-fat diet, much like humans eating nothing but muesli,' says Dr Murray. 'The high-fat diet, in which 55 per cent of the calories came from fat, sounds high but it's actually not extraordinarily high by human standards. A junk food diet would come close to that.'

'Some high-fat, low-carb diets for weight loss can even have fat contents as high as 60 per cent. However, it's not clear how many direct conclusions can be drawn from our work for these diets, as the high-fat diet we used was not particularly low in carbs,' he adds.

On the fifth day of the high-fat diet (the first day back on the treadmill), the rats were already running 30 per cent less far than those remaining on the low-fat diet. By the ninth day, the last of the experiment, they were running 50 per cent less far.

The rats on the high-fat diet were also making mistakes sooner in the maze task, suggesting that their cognitive abilities were also being affected by their diet. The number of correct decisions before making a mistake dropped from over six to an average of 5 to 5.5.

The researchers also investigated what metabolic changes the high-fat diet was inducing in the rats. They found increased levels of a specific protein called the 'uncoupling protein' in the muscle and heart cells of rats on the high-fat diet. This protein 'uncouples' the process of burning food stuffs for energy in the cells,

reducing the efficiency of the heart and muscles. This could at least partly explain the reduction in treadmill running seen in the rats.

The rats that were fed a high fat diet and had to run on the treadmill also had a significantly bigger heart after nine days, suggesting the heart had to increase in size to pump more blood around the body and get more oxygen to the muscles.

While this research has been done in rats, the Oxford team and Andrew Murray's new group in Cambridge are now carrying out similar studies in humans, looking at the effect of a short term high-fat diet on exercise and cognitive ability.

The results will be important not only in informing athletes of the best diets to help their training routine, but also in developing ideal diets for patients with metabolic disorders such as diabetes, insulin resistance or obesity. People with such conditions can have high levels of fat in the blood and show poor exercise tolerance, some cognitive decline, and can even develop dementia over time.

'These are startling results,' says Professor Kieran Clarke, head of the research team at Oxford University. 'It shows that high-fat feeding even over short periods of time can markedly affect gene expression, metabolism and physical performance. By optimising diets appropriately we should be able to increase athletes' endurance and help patients with metabolic abnormalities improve their ability to exercise and do more.'

'In little more than a week, a change in diet appears to have made the rats' hearts much less efficient,' says Professor Jeremy Pearson, Associate Medical Director of the British Heart Foundation, who funded the research. 'We look forward to the results of the equivalent studies in human volunteers, which should tell us more about the short-term effects of high-fat foods on our hearts. We already know that to protect our heart health in the long-term, we should cut down on foods high in saturated fat.'

Public release date: 12-Aug-2009

Carnitine supplements reverse glucose intolerance in animals

DURHAM, N.C. – Supplementing obese rats with the nutrient carnitine helps the animals to clear the extra sugar in their blood, something they had trouble doing on their own, researchers at Duke University Medical Center report.

A team led by Deborah Muoio (Moo-ee-oo), Ph.D., of the Duke Sarah W. Stedman Nutrition and Metabolism Center, also performed tests on human muscle cells that showed supplementing with carnitine might help older people with prediabetes, diabetes, and other disorders that make glucose (sugar) metabolism difficult.

Carnitine is made in the liver and recycled by the kidney, but in some cases when this is insufficient, dietary carnitine from red meat and other animal foods can compensate for the shortfall.

After just eight weeks of supplementation with carnitine, the obese rats restored their cells' fuel-burning capacity (which was shut down by a lack of natural carnitine) and improved their glucose tolerance, a health outcome that indicates a lower risk of diabetes.

These results offer hope for a new therapeutic option for people with glucose intolerance, older people, people with kidney disease, and those with type 2 diabetes (what used to be called adult-onset diabetes).

Muoio said that soon her team of researchers will begin a small clinical trial of carnitine supplementation in people who fit the profile of those who might benefit from additional carnitine – older people (60 to 80 years) with glucose intolerance.

The study is published in the Aug. 21 issue of the Journal of Biological Chemistry.

The Duke researchers began studying carnitine more closely when abnormalities in the nutrient emerged from blood chemistry profiles of obese and old animals. These chemical profiles report on hundreds of byproducts of cell metabolism called metabolites and give scientists an opportunity to identify markers of disease states.

Carnitine is a natural compound known for helping fatty acids enter the mitochondria, the powerhouses of cells, where fatty acids are "burned" to give cells energy for their various tasks. Carnitine also helps move excess fuel from cells into the circulating blood, which then redistributes this energy source to needier organs or to the kidneys for removal. These processes occur through the formation of acylcarnitine molecules, energy molecules that can cross membrane barriers that encase all cells.

Researchers at Duke had observed that skeletal muscle of obese rats produced high amounts of the acylcarnitines, which requires free carnitine. As these molecules started to accumulate, the availability of free, unprocessed carnitine decreased. This imbalance was linked to fuel-burning problems, that is, impairments in the cells' combustion of both fat and glucose fuel.

"We suspected that persistent increases in acylcarnitines in the rats were causing problems, and we could also see that the availability of free carnitine was decreasing with weight gain and aging," said Muoio. "It appeared that carnitine could no longer do its job when chronic metabolic disruptions were stressing the system. That's when we designed an experiment to add extra carnitine to the rats' diet."

Muoio is also a professor in the departments of medicine, pharmacology and cancer biology.

Public release date: 13-Aug-2009

Mango seeds may protect against deadly food bacteria

Life in the fruit bowl is no longer the pits, thanks to a University of Alberta researcher.

Christina Engels has found a way to turn the throwaway kernels in mangos into a natural food preservative that could help prevent Listeriosis outbreaks like the one that killed 21 Canadians last year.

The findings can also apply to other fruit seeds like grapes, said Engels, who conducted the research to earn her master's degree from the Department of Agricultural, Food and Nutritional Science at the U of A. The research is published in the latest Journal of Agricultural and Food Chemistry:
<http://pubs.acs.org/doi/pdf/10.1021/jf901621m>

Pure tannins, a plant component extracted from otherwise useless mango kernels by Engels, have proven inhibitory effects against various strains of bacteria including Listeria, a potentially deadly pathogen that infected some packaged meats and caused an outbreak of disease in Canada in 2008.

Engels' research focuses on a way to recycle wood-like mango kernels, which are usually thrown away or burned. "By processing the kernels for their tannins, businesses have a way to completely utilize all fruit parts and therefore increase their profit," she said. Currently, mangos are one of the main fruits marketed globally, ranked fifth in world production among the major fruit crops.

Public release date: 13-Aug-2009

Active ingredients in marijuana found to spread and prolong pain

Research has implications for medical use of drug and concepts of chronic pain

GALVESTON, Texas — Imagine that you're working on your back porch, hammering in a nail. Suddenly you slip and hit your thumb instead — hard. The pain is incredibly intense, but it only lasts a moment. After a few seconds (and a few unprintable words) you're ready to start hammering again.

How can such severe pain vanish so quickly? And why is it that other kinds of equally terrible pain refuse to go away, and instead torment their victims for years?

University of Texas Medical Branch at Galveston researchers think they've found at least part of the answer—and believe it or not, it's in a group of compounds that includes the active ingredients in marijuana, the cannabinoids. Interestingly enough, given recent interest in the medical use of marijuana for pain relief, experiments with rodents and humans described in a paper published in the current issue of *Science* suggest these "endocannabinoids," which are made within the human body, can actually amplify and prolong pain rather than damping it down.

"In the spinal cord there's a balance of systems that control what information, including information about pain, is transmitted to the brain," said UTMB professor Volker Neugebauer, one of the authors of the *Science* article, along with UTMB senior research scientist Guangchen Ji and collaborators from Switzerland, Hungary, Japan, Germany, France and Venezuela. "Excitatory systems act like a car's accelerator, and inhibitory ones act like the brakes. What we found is that in the spinal cord endocannabinoids can disable the brakes."

To get to this conclusion, the researchers began by studying what happened when they applied a biochemical mimic of an endocannabinoid to inhibitory neurons (the brakes, in Neugebauer's analogy) on slices of mouse spinal cord. Electrical signals that would ordinarily have elicited an inhibitory response were ignored. They then repeated the procedure using slices of spinal cord from mice genetically engineered to lack receptors where the endocannabinoid molecules could dock, and found that in that case, the "brakes" worked. Finally, using electron microscopy, they confirmed that the receptors were in fact on inhibitory, not excitatory neurons. Endocannabinoids docking with them would suppress the inhibitor neurons, and leave pain signals with a straight shot to the brain.

"The next step was to make the leap from spinal slices to test whether this really had anything to do with pain," Neugebauer said. Using anesthetized rats, he recorded the spinal cord electrical activity produced by an injection in the hindpaw of capsaicin— a chemical found in hot peppers that produces a level of pain he compared to a severe toothache. Although the rats were unconscious, pain impulses could be detected racing up their spinal cords. What's more, formerly benign stimuli now generated a significant pain response — a response that stopped when the rats were treated with an endocannabinoid receptor blocker.

"Why was this non-painful information now gaining access to the spinal "pain" neurons?" Neugebauer said. "The capsaicin produced an overstimulation that led to the peripheral nerves releasing endocannabinoids, which activated receptors that shut down the inhibitor neurons, leaving the gates wide open."

Finally, the researchers recruited human volunteers to determine whether a compound that blocked endocannabinoid receptors would have an effect on the increased sensitivity to pain (hyperalgesia) and tendency for normally non-painful stimuli to induce pain (allodynia) often reported in areas of the body near where acute pain had been inflicted. In this case, the researchers induced pain by passing electricity through the volunteers' left forearms, with the intensity of the current set by each volunteer to a 6 on a scale of 1 to 10. At a second session a month later, the volunteers who had received the receptor blocker showed no reduction in perceived acute pain, but had significantly less hyperalgesia and allodynia — a result that matched up well with the endocannabinoid hypothesis.

"To sum up, we've discovered a novel mechanism that can transform transient normal pain into persistent chronic pain," Neugebauer said. "Persistent pain is notoriously difficult to treat, and this study offers insight into new mechanisms and possibly a new target in the spinal cord."

It also raises questions about the efficacy of marijuana in relieving acute pain, given that endocannabinoids and the cannabinoids found in marijuana are so biochemically similar. **"If you had a toothache, you**

probably wouldn't want to treat it with marijuana, because you could actually make it worse," Neugebauer said. "Now, for more pathological conditions like neuropathic pain, where the problem is a dysfunction within the nerves themselves and a subsequent disturbance throughout the nervous system that's not confined to the pain system, marijuana may be beneficial. There are studies that seem to show that. But our model shows cannabinoids over-activating the pain system, and it just doesn't seem like a good idea to further increase this effect."

Public release date: 14-Aug-2009

Studies do not support unhealthy relation between animal foods and breast cancer

Breast cancer is the 7th leading cause of mortality in the United States and results in approximately 41,000 deaths each year. Although genetic factors are important, there is considerable evidence that breast cancer risk is related to modifiable lifestyle factors, such as physical activity, body weight, alcohol intake, and dietary choices. The September 2009 issue of *The American Journal of Clinical Nutrition* reports the results of 3 human studies designed to better delineate the relation between animal foods and breast cancer risk.

"These studies highlight two very important points," said American Society for Nutrition Spokesperson Shelley McGuire, PhD. "First we all need to remember that there are really no such things as 'bad' foods. Second, observational studies that show associations between diet and health need to be considered with a proverbial grain of salt. These studies clearly provide additional and strong evidence that consumption of meat and dairy products by women does not, by itself, increase breast cancer risk. Further, moderate and mindful consumption of these foods can be very important in attaining optimal nutrition for most women who often do not consume sufficient iron and calcium."

In the first study, which was a controlled dietary intervention trial conducted in the United States, 35 obese postmenopausal women with type 2 diabetes received conjugated linoleic acid (CLA) supplements or a control supplement (safflower oil) each for 36 wk; adiposity was assessed. In another study, researchers examined the association between CLA intake from natural sources and breast cancer incidence in a large cohort of initially cancer-free Swedish women for 17.4 y. The third study assessed whether the consumption of meat, eggs, and dairy products was associated with breast cancer risk in a very large group of healthy European women followed for 8.8 y.

These studies provide no evidence that animal-food consumption increases (or decreases) risk of breast cancer, although CLA supplementation may decrease adiposity (a major risk factor for this disease). In an editorial, Linos and Willett remind us that these studies did not assess the relation between animal-food intake during early life and later breast cancer, a likely important piece of the puzzle. Nonetheless, they conclude, "These data are sufficient to exclude any major effect of consuming these foods during midlife or later on risk of breast cancer." Perhaps we finally have the answer to this long-standing question.

Public release date: 17-Aug-2009

Does sugar feed cancer?

New research sheds light on old saying

SALT LAKE CITY, Aug. 17, 2009 — Researchers at Huntsman Cancer Institute at the University of Utah have uncovered new information on the notion that sugar "feeds" tumors. The findings may also have implications for other diseases such as diabetes. The research is published in the journal *Proceedings of the*

National Academy of Sciences.

"It's been known since 1923 that tumor cells use a lot more glucose than normal cells. Our research helps show how this process takes place, and how it might be stopped to control tumor growth," says Don Ayer, Ph.D., a Huntsman Cancer Institute investigator and professor in the Department of Oncological Sciences at the University of Utah.

During both normal and cancerous cell growth, a cellular process takes place that involves both glucose (sugar) and glutamine (an amino acid). Glucose and glutamine are both essential for cell growth, and it was long assumed they operated independently, but Ayer's research shows they are inter-dependent. He discovered that by restricting glutamine availability, glucose utilization is also stopped. "Essentially, if you don't have glutamine, the cell is short circuited due to a lack of glucose, which halts the growth of the tumor cell" Ayer says.

The research, spearheaded by Mohan Kaadige, Ph.D., a postdoctoral fellow in Ayer's lab, focused on MondoA, a protein that is responsible for turning genes on and off. In the presence of glutamine, MondoA blocks the expression of a gene called TXNIP. TXNIP is thought to be a tumor suppressor, but when it's blocked by MondoA, it allows cells to take up glucose, which in turn drives tumor growth. Ayer's research could lead to new drugs that would target glutamine utilization, or target MondoA or TXNIP.

Ayer says the next step in his research is to develop animal models to test his ideas about how MondoA and TXNIP control cell growth. "If we can understand that, we can break the cycle of glucose utilization which could be beneficial in the treatment of cancer," Ayer says.

Public release date: 17-Aug-2009

New "biofactories" produce rare healing substances in the endangered Devil's claw plant

Deep in Africa's Kalahari Desert lies the "Devil's claw," a plant that may hold the key to effective treatments for arthritis, tendonitis and other illnesses that affect millions each year. Unfortunately, years of drought have pushed the Devil's claw toward extinction, so scientists are scrambling to devise new ways to produce the valuable medicinal chemicals of the Devil's claw and other rare plants.

One group of scientists reported a major advance toward that goal here today at the 238th National Meeting of the American Chemical Society (ACS). They described the first successful method of producing the active ingredients in Devil's claw — ingredients that have made the Devil's claw a sensation in alternative medicine in Europe. Their technique may eventually lead to the development of "biofactories" that could produce huge quantities of rare plant extracts quickly and at little cost.

Milen I. Georgiev, Ph.D., who delivered the report, pointed out that for thousands of years, native populations in Southern Africa have used the Devil's claw as a remedy for a huge number of ailments, including fever, diarrhea and blood diseases. Today, there are dozens of medicinal and herbal products around the world that are based on chemicals derived from the Devil's claw.

In particular, studies suggest that two chemicals — the so-called iridoid glycosides harpagoside and harpagide — may have beneficial effects in the treatment of degenerative rheumatoid arthritis, osteoarthritis, tendonitis, and other conditions, Georgiev said.

Public release date: 17-Aug-2009

Rate of severe childhood obesity up sharply in U.S

NEW YORK (Reuters Health) – **The rate of severe obesity among U.S. children and teenagers more than tripled over the past three decades, a new study finds.**

Using data from a long-running government health survey, researchers found that as of 2004, nearly 4 percent of 2- to 19-year-olds in the U.S. were severely obese.

That was up more than three-fold from 1976, and more than 70 percent from 1994, the researchers report in the journal Academic Pediatrics.

"Children are not only becoming obese, but becoming severely obese, which impacts their overall health," lead researcher Dr. Joseph A. Skelton, of Wake Forest University School of Medicine in Winston-Salem, North Carolina, said in a news release from the university.

"These findings," he added, "reinforce the fact that medically-based programs to treat obesity are needed throughout the United States and insurance companies should be encouraged to cover this care."

The study also found that minority and lower-income children are at particular risk of severe obesity -- which, in children and teenagers, is defined as having a body mass index (BMI) in the 99th percentile for one's age and gender.

In the most recent survey, which included 12,000 2- to 19-year-olds from across the U.S., nearly 6 percent of African-American children and teens were severely obese, as were roughly 5 percent of Mexican-Americans. That compared with 3 percent of their white peers.

In contrast, less than 1 percent of Mexican-American children and less than 2 percent of black children were severely obese in the 1970s survey.

When it came to family income, the latest survey data show that just over 4 percent of relatively lower-income children were severely obese, versus 2.5 percent of those from higher-income families.

The findings underscore a central obstacle in tackling childhood obesity, Skelton and his colleagues note: The children who are most affected also generally have the greatest difficulty getting good healthcare.

"No simple answers exist," the researchers write, pointing out that along with better access to healthcare, there also need to be broader efforts to improve the diets and lifestyle habits of U.S. children.

Some current Swine Flu Vaccine Truths: (By Ralph Turchiano 18 AUG 09)

1. It May be implemented on Pregnant, women and children before the very Short Term Experimental Trials are complete.
2. It will be a Live Virus Vaccine - Not Inactivated as some Claim. Some of you know what that means
3. It is currently mutating possibly making a vaccine at least useless
4. No one knows what will happen if you administer the Flu and Swine Flu vaccine together
5. Do you have a better chance of being harmed by the vaccine or the Swine Flu? Where is the Risk to benefit analysis?
6. The Vaccine developers and the federal government cannot be held liable if things go wrong. If the vaccines are totally safe . Than why bother to pass a separate law earlier this year granting them legal immunity? They want us to believe it is totally safe, when they don't truly believe it themselves.

Vaccines can be of great benefit; However, in what I believe to be a rushed development of a questionable vaccine. I truly wonder if the cure may end up being more dangerous than the disease. There are so many maybes, and wild speculation that science in the public interest seems to have been compromised.

**These reports are done with the appreciation of all the Doctors, Scientist, and other Medical Researchers who sacrificed their time and effort. In order to give people the ability to empower themselves. Without the base aspirations for fame, or fortune.
Just honorable people, doing honorable things.**